

RTTY *Journal*

JANUARY 1981

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75 CENTS

EXCLUSIVELY AMATEUR RADIOTELETYPE



TOM GIBSON, W3EAG WITH HEATH H-8, MODEL 5A TELETYPE AND HIS ARTWORK

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IN OTHER CASES IT DOES NOT. HOWEVER, IT IS NOT AS COSTLY TO GO THROUGH MANAGERS.

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RTTY



RTTY MICROCOMPUTING
BY: CLAYTON W. ABRAMS

1758 COMSTOCK LANE
SAN JOSE, CALIFORNIA 95124

In my last column I discussed the various types of microcomputer systems. This time I'll discuss interfacing the microcomputer to your RTTY hardware. The interfacing can be very easy or difficult depending on the system to which you wish to attach. The Ham Radio hardware can be contained on a special card which can be plugged into the bus, or in many cases, the interface is part of the basic system which you have. The interface is usually a port of some type. This port can be serial or parallel. The parallel ports are the most flexible and can be interfaced quite easily. Most serial ports are designed for ASCII use and have too many data bits for Baudot code reception and transmission. So I will not talk much about these devices. Let us explore how parallel ports can be best utilized.

You may ask "What is a port?" Well a port is nothing more than a path from the microcomputer to the outside world. Typically a port has 8 data bits or more on a single integrated circuit. Each bit can be visualized as a single wire which can be turned on or off under program control. Sound easy? Well it is! If you want to turn on one of these port bits, all that has to be done is to program the bit as a one or a zero. Likewise if you want to read the status of the bit to see if a signal is present, all that has to be done by the computer is to read the port. You can now test if the bit is on or off by a special instruction. By the way, a "one" in computer jargon is a positive voltage (approximately 5 volts) and a "zero" is ground. Well this all sounds quite simple so let's confuse the issue by bringing up another factor called time. Time is another di-

mension which you can handle by two methods.

You can attach some external hardware to the port to control the timing or you can let software handle the timing. This is entirely up to the person designing the system. If your specialty is not programming then hardware can do the trick. If you enjoy programming, you may wish to use this method. As you know in order to transmit RTTY at 60 WPM a data rate of 22 msec and a stop bit time of 31 msec duration must be used. These timings can be generated in one of two ways:

1. HARDWARE METHOD

The hardware technique is to attach a universal asynchronous receiver/transmitter (UART) to a micro parallel port. This device is typically an integrated circuit with 40 pins. An excellent device for this application is a 1602 UART which is available from a number of sources for around \$5.00. This device can receive or transmit data with 5 to 8 bits, at whatever data rate applied to the chip. This data rate is controlled by an oscillator on the interface circuitry. To change speeds the frequency of this oscillator must be changed. The output of this device is a positive or zero level TTL level. Therefore, to use this for RTTY, a modulator and demodulator (T.U.) must be connected to the UART.

2. SOFTWARE METHOD

The software methods are a little more abstract, however, they accomplish the same effect. However, they have two big advantages:

- A. The software technique uses less hardware and the only cost is the expense of software development.
- B. Any data pattern (ASCII or BAUDOT) and speed can be generated with slight program changes.

The software timing technique is simple to explain. All you have to do is turn on a bit port. Place a delay in the program by counting down a counter until it is zero. You can then turn the bit on the port off. The duration of the delay will be the period of the signal. To change the frequency of the signal all you have to do is change the initial value loaded in the counter.

So far I have only discussed the transmission of RTTY, reception is the exact opposite. All you have to

do is reverse the process. To do this you first look to see if a signal is present. If it is you delay a data bit and one half. Then look for an on condition if so you have received a data bit. You can then repeat the entire process until an entire five bits or a Baudot character has been received.

Well, with this background, you are now armed with enough information to understand an example of interfacing in my next column.

In all of my RTTY microcomputer applications I have used the software technique for transmission and reception. I have written about 10 different software packages for the 6800 and 6809 microcomputers. Just last week (11-30-80) I received my new TRS color computer which uses a 6809 microprocessor. I believe this is an excellent low cost (\$399) computer for Amateur Radio applications. Interfacing is very simple due to the built in RS232 port. I was very pleased to find the color computer, unlike other Radio Shack products, very clean with no TVI or RF interference. Even with the computer a few inches away from my TV set. It will be a lot of fun developing RTTY and SSTV software packages for this machine. Imagine looking at RTTY in full color on your TV.

See you in a month or so.....Clay

SO SORRY WE ARE LATE BUT when your right hand man around the JOURNAL has a heart attack and then open heart surgery (a quad bypass) the JOURNAL tends to get neglected in the shuffle of visiting the hospital, keeping friends and family informed and the JOURNAL vital mail answered. John came through surgery fine (day after Thanksgiving) fine and is now responding quite well. Many thanks to all Amateurs concerned about John.



RTTY Journal
VHF
RTTY NEWS

Column not received

NOTES ON 74S188 FROM
 "DOWN UNDER" BY RON COLLINS
 VK5RY, 5 WINSTON COURT, MODBURY, SA5092
 AUSTRALIA

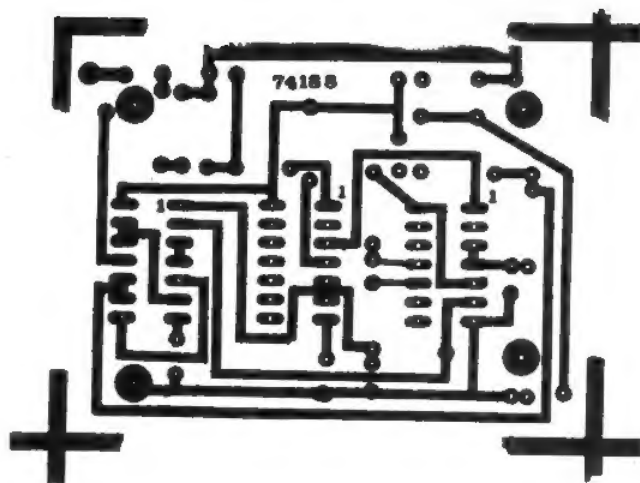
74188 Programmer --VK5RY

The September 1980 issue of the JOURNAL has prompted me to send the enclosed information about a 74S188 programmer.

Having tried all the makeshift programmers that invariably failed to work properly, I decided to apply "Murphy's Law" and do what the manufacturers of the chip specify; that is, apply the correct voltages at the right time.

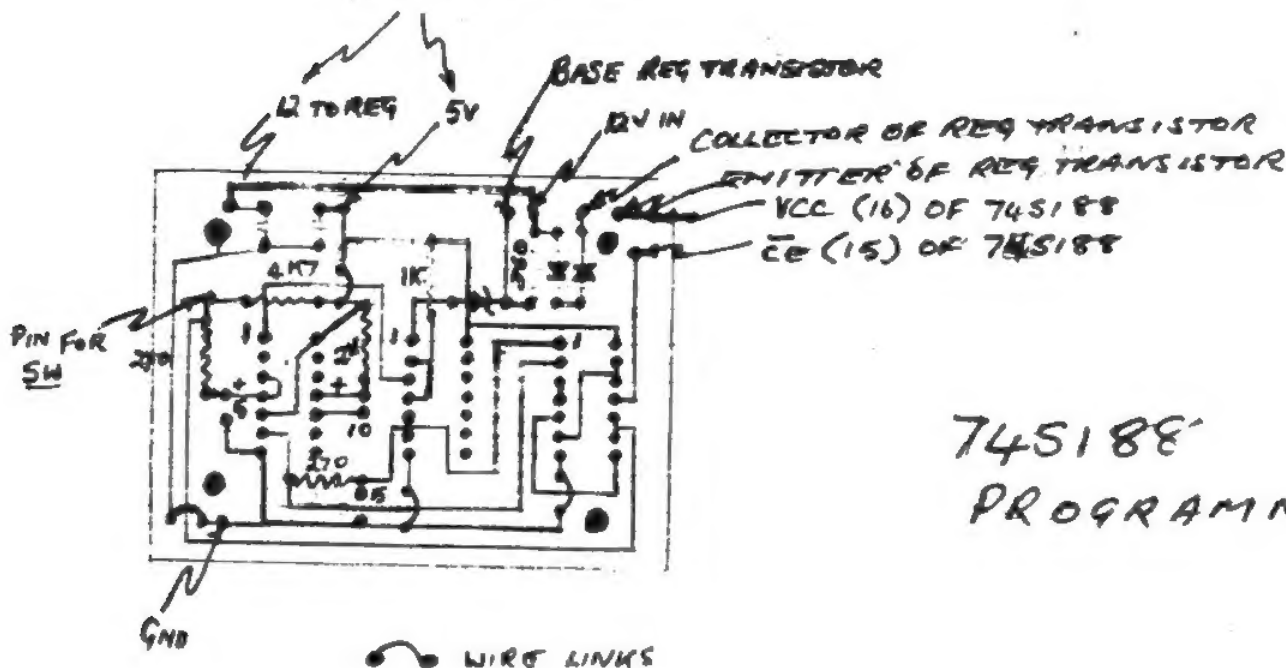
The idea came from a Japanese CQ magazine of some years ago, and is modified to suit my own requirements, but it is guaranteed to work, and has the added advantage that all 8 bits in the address can be "burnt" at one hit, instead of individually as others are "supposed" to do.

Have included a photo of the box (Editors note- photo was much too dark and "red" to print), and a copy of my art work, but the whole thing is so simple.



7421 7421 7400

1/P & Q/P OF LM3AOT



74S188
 PROGRAMMER

74S188 PROGRAMMER de VK5RY

LM340T & 2N3055 BOTH FLAT PAKS
GUARANTEED TO WORK WITH NO HASSLES.

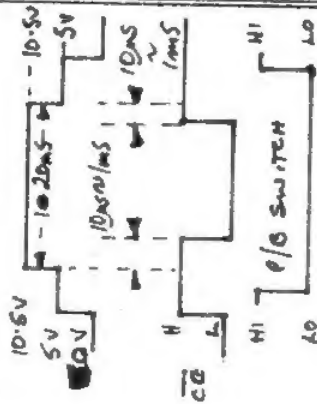
1. INSERT 74S188 IN SOCKET BEFORE APPLYING 12.5 - 13.0 V SUPPLY.
2. APPLY POWER, ALL DATA SWITCHES IN HI (NON-PROGRAM POSN).
3. RUN THROUGH ALL ADDRESS SWITCH POSITIONS AND LEDS WILL LIGHT IF CHIP OK.
4. SET UP ADDRESS NO. (0000) 0-LO, 1-HI.
5. CODE DATA SWITCHES LOW AS REQUIRED.
6. HIT BUTTON ONCE.
7. LEDS WILL LIGHT ON DATA SWITCH HI OR LO (CHECK).

8. PROCEED TO

NEXT ADDRESS.

NOTE: BEFORE HITTING THE SWITCHES OF DATA SELECTED WILL LIGHT UP, AND WILL REMAIN LIT IN BOTH POSITIONS AFTER BURNING.

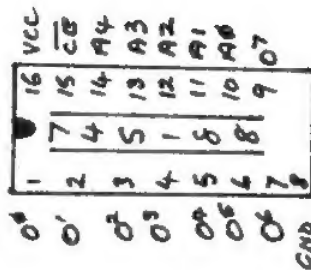
TIMING



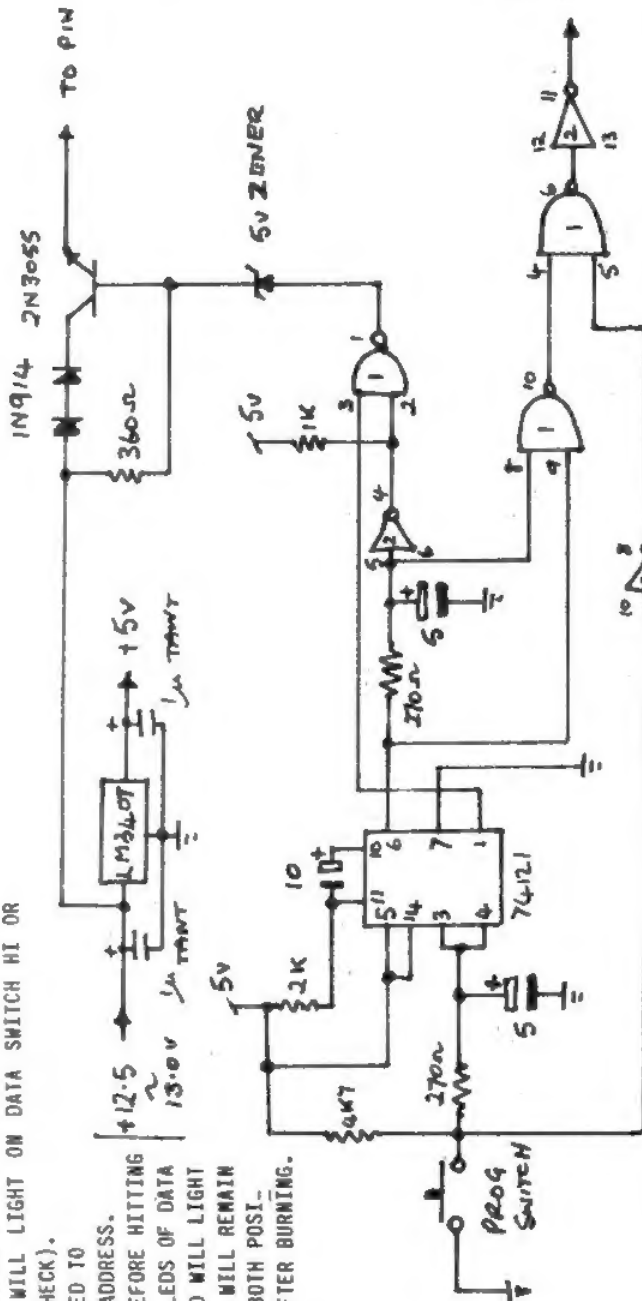
164 74S188 (VCC)

IC1 = 7401

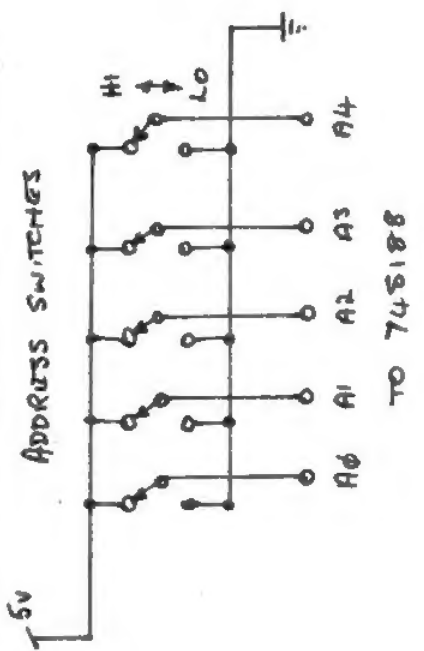
IC2 = 7400



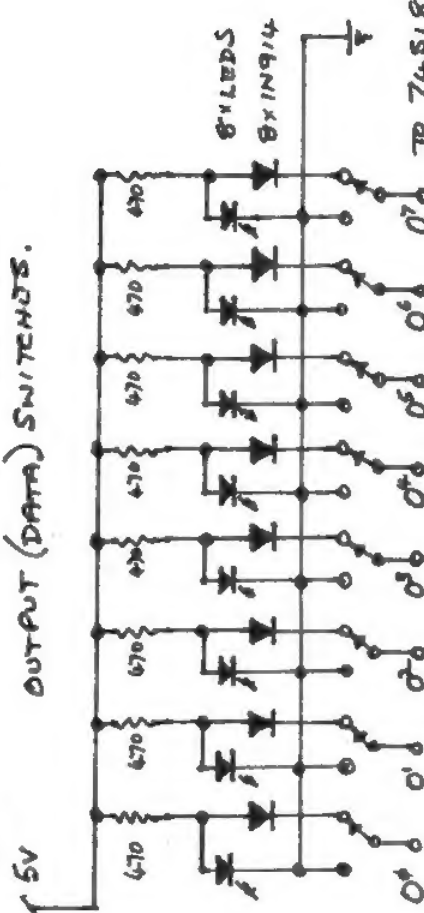
TO PIN 1500 74S188 (CE)



ADDRESS SWITCHES



OUTPUT (DATA) SWITCHES





GREETINGS TO ALL!

I hope that everyone has recovered from the holidays with flying colors. The contests are all over for another year and it is time to look back on the year and see how we have fared in our quest for DXCC status. There were many new stations on this past year and with the birth of the solid equipment that is now readily available we are really seeing many new signals on the bands. I have not been on RTTY for all that long myself, nine years this year, and I have seen the popularity on a steady and rapid rise. I hope that it continues and also with it the calibre of the Ham that has been drawn to RTTY does not change. I listen up on the fone part of the bands from time to time to see where the band is open to and am very pleased that we do not have the garbage to put up with that goes on up there. I know that is why some are still on RTTY after they first got on just to see what it was like.

This month I got my computer station more in line with the state of the art by getting onto Micronet. Those of you that have the capability type "R SIGS" after getting onto Micronet and then select the Heathkit Users Group bulletin board and leave me a message my ID number as 70340, 302. I am also on two local bulletin boards here in San Diego and check into these on a daily basis. Their numbers are 714-449-5689 and 714-582-9557. I would be more than happy to hear from any of you that are into this mode of communications. I am using a Heathkit H-9 H-19 H17 with a cat modem and Softstuff's C.P.S. modem program.

Barry, W3FV is looking for QSL information on EA9EY, FY7BI and KV4AQ. The last two are no longer active and have left their QTH's. Does anyone know the whereabouts of any of these Amateurs? Please drop me or Barry a note so that he can get a much needed QSL card. Thank you.

Here is a listing of some of the stations that were active during the

past few weeks:

VS5TX with JA1BK; DU1POL; TI2XG; A22PS/ P/ZE; UAOCBO zone 19; VU2KU; GJ3FKW; EI3CN; 4X6CV Jerusalem; VKOKH; 5NoDOG; FO3BL box 45 Papeete, Tahiti; CH8BI box 29 Frosinone, Italy 03100; TU2JJ; VP5AH via WA4DRU; 3B8RS Amber, Klostermayer 3, 6471 Herzenheine, Fed. Rep of Ger; SV8CS; SVOAP via W87MCF; UT5RP; Z53B; GD3YED; OD5MR; YBOACB; KHOAB on from Marianas (Siapan) 9W6MO, 9W6MA, 9W6BE all with the help of JA1BK; HH5MC will be on soon and also from Campbell Island will be a station with a ZL3-- /A call.

My thanks to the many hams giving me their info to help make this column what it is. For this column the following hams gave inputs: KOPJ, W2PSU, K5MTA, W3FV, W4CQI, AND especially thanks to John, W3KV.

73's de "SKIP"

AWARDS SECTION

DXCC Award #51 dated December 15, 1980
Johannes Chmielus, DL1IJ

DXCC HONOR ROLL FOR Jan. 1980

1. ON4BX 193/192
2. W3KV 188/184
3. ON4CK 186/181
4. K7BV 187/177
5. DK3CU 176/173
6. W3DJZ 179/173
7. I8AA 187/167
8. I5WT 161/161
9. W2LFL 165/160
10. W4CQI 159/154
11. W5EUM 156/151
12. G6JF 140/140
13. JA8ADQ 142/135
14. W8JIN 136/133
15. I5FLW 131/130
16. F8XT 143/128
17. K6WZ 136/126
18. F5JA 132/123
19. W3EKT 125/118
20. W3FV 130/115
21. W2PSU 117/109
22. IOAOF 132/108
23. DJ8BT 111/106
24. W2IUC 117/105
25. K3SWZ 110/105

26. JA1DSI 117/104
27. DJ3OE 103/103
28. DJ1IJ 103/103
29. VK2SG 119/101
30. W6JOX 111/101
31. W7MI 110/101
32. K8BJ 113/100
33. W86CYA 101/91
34. K4VM 93/88
35. WA6WGL 102/85
36. ON5WG 103/85
37. SM6ASD 94/81
38. W8HAH 88/81
39. DK5WJ 101/76
40. WA6CQM 85/76
41. W8MT 79/76
42. ABØY 85/75
43. KØPJ/6 93/72
44. W8CAT 66/59
45. W82VTD 67/57
46. DF7FB 65/53
47. K1LPS 65/51
48. WA9AKT 63/48
49. KØPJ/6 92/46
50. W85QBV 55/42
51. OR4PL 64/22
52. WA3ZKZ 36/12
53. WA4JJY 38/11

HAM HELPS

WA4EBJ, C. Scott Johnson, 801 Nutt Avenue, Rossville, GA 30741. Scott writes that he has a CV-32 which uses 2 0B3 tubes and wants to know if any one can tell him about it? He is just getting started in RTTY and only has a printer.

Terry Ward, McCormick Str. Extension B-3, Dubuque, IA 52001. Terry writes that he is on SWL and was looking for a users report on either the Kantronics RTTY/CW reader or the Microcraft RTTY reader. Can anyone write one for us to print or write to Terry and tell him what you think of your unit. The RTTY JOURNAL is more than happy to do users reports on any item that is submitted to use concerning RTTY. Write to "DEE" or "SKIP" or any of the staff for that matter.

MURPHY-ISMS: If an experiment works, something has gone wrong.

: It works better if you plug it in!

CONTEST RULES-CONTEST RULES-CONTEST RULES-CONTEST RULES-CONTEST RULES-CONTEST

5 CONTINENT WORLD RTTY 1981

CHAMPIONSHIP---I.A.T.G...

IATG has decided to sponsor a new series of contests for RTTYers, all continents. Purpose is to stress inter-continental contacts rather than domestic contacts as in earlier contests.

The following contests have been organized: Australia-Oceania & Asia RTTY Flash 24-25 January 1981. North & South America Flash 28-29 March 1981, Europe & Africa Flash 23-24 May 1981. For each of the 3 contests there will be a general winner plus a winner from each of the two contests involved. Points will be awarded as follows:

A. for contest winners

first place	50 points
second place	46 points
third place	43 points
fourth place	41 points
fifth place	40 points

B. for continental winners

first place	25 points
second place	22 points
third place	20 points
fourth place	18 points
fifth place	17 points

Standings are independent, continental winners can also be general winners. At the end of the three contests-continental & general standing points will be totaled and a **WORLD CHAMPION OF THE 5 CONTINENT** will be declared according to the new final standings obtained. Prizes will be awarded for the four first place winners.

AUSTRALIA-OCEANIA & ASIA RTTY FLASH CONTEST DATES:

05.00-1500 GMT 24 Jan.1981

05.00-15.00 GMT 25 Jan.1981

Bands: 3.5, 7, 14, 21, 28 MHz Amateur bands.

Country status: The DXCC list will be used except that the VE/VO, W/K, VK, PY, LU, JA, UA0/9 call areas will be considered as separate countries.

PAGE 8

Classes: A. single/multi-operator with single transmitter. B. S.W.L.'s.

Messages: Messages will consist of: RST, Number of the QSO and one's continent (Example: VK4XX 599 72 Asia) Exchange Points for QSO on: 3,5 & 7 MHz - 2 points 14 MHz - 3 points 21 MHz - 6 points 28 MHz - 8 points No point or multipliers for contact with one's own country. Only 2XRTTY QSOs are valid.

Logs & score sheets: Use one log for each band. Logs must contain: date, time (GMT), call sign, RST-number of the QSO-continent sent and received, country and continent multiplier, points and final score. Each country may be contacted only once on any band, additional contact may be made with the same station if a different band is used. In order to qualify, all logs must be received not later than 28 February 1981.

Send them to: Prof. Franco Fanti, Via A. Dall'olio n 19, 40139 Bologna, Italy. Multipliers: multipliers are given for countries and continents. A multiplier is given for each country worked on bands 14-21-28MHz No multipliers for 3.5 and 7MHz or for one's own continent. A separate multiplier may be claimed for the same country if a different band is used. (max. 3 times). Only countries which appear in at least 3 other logs will be valid as multipliers, or the QSL of the contact. One's own country is invalid as a multiplier. The continents are valid as multipliers. For contacts with Europe or Africa, the sender and receiver will each be assigned 100 points as multiplier. 50 points will be assigned for each of the

remaining continents contacted. After the above indicated calculation, world stations add 100 points for each station of Australia-Oceania & Asia worked on 21 & 28 MHz.

Scoring: Total points X Total number of countries X Total continents points + Total points Australia-Oceania & Asia station worked. Example: 600 points for total x 10 countries worked x 100 continents points = 6000,000 + 20 stations of Australia worked on 21-28 MHz giving a grand total of 602,000 points. ATTENTION: OM's operating from North or South America Europe, and Africa contacting Australia-Oceania and/or Africa during promotional hours of 10-11 GMT on 24 Jan.1981 and 12-13 GMT on Jan. 25, 1981 will Double their points for those periods.

Beginners: First time RTTY'ers in this contest will receive an additional 5% of their final score.

Handicap: 10% of the total final score of previous RTTY championship. And 8% of the total final score for winner of one or more previous RTTY contest.

SWL: Same rules as for above with the exception that: the same station is valid only one time on all bands.

NORTH & SOUTH AMERICA RTTY FLASH CONTEST-CONTEST DATES

18.00-02.00 GMT 28 Mar.1981

12.00-24.00 GMT 29 Mar.1981

Bands, Country Status,

Classes, Messages, Exchange

points, Logs and Score

Sheets are the same as in

the Australia-Oceania & Asia

Contest above with the ex-

ception of date of recep-

tion which will be in this

contest: 30 April, 1981.

Scoring will be the same

as in above contest with

the exception of the dates

of the promotional periods: 19.00-20.00 GMT 28 Mar.1981 12.00-14.00 GMT 29 Mar.1981 Rules of Behaviour and Penalization: Logs must be compiled with the above mentioned rules. Contacts must be made by means of RTTY mode ONLY. That is other modes of transmission made use of ordinarily MAY NOT BE USED BEFORE, DURING OR AFTER the exchange of the message of Radioteletype. During the contest it is expected that Amateurs will observe fundamental rules of courtesy and good operating procedures. The contest disqualifications used by ARRL will be adhered to in this contest. Failure to comply with the rules will result in the exclusion of the entry and any such log will be considered as a check log. Logs with compiling errors of more than 10% of final score will also be excluded and used as check logs. Any log received will become the property of IATG and cannot be returned. The decision of the Committee will be final and any subsequent controversy may not be referred to any Civil Court.

EUROPE & AFRICA GIANT RTTY FLASH CONTEST---DATES:

14.00-24.00 GMT 23 May 1981

08.00-18.00 GMT 24 May 1981

Bands, Country Status, Mes-

sages, Exchange Points, Logs

and Score Sheets, Multi-

pliers are the same as above

for this contest. Scoring

will differ in that Europe

and Africa stations worked

on 21 and 28 MHz will re-

place Australia-Oceania &

Asia as was the case in the

first contest and North and

South America in the second

contests above.

Promotional periods for this

contest will be:

17.00-18.00 GMT 23 May 1981

10.00-11.00 GMT 24 May 1981

GOOD HUNTING TO ALL!!!!!!

MORE DX ON PAGE 10



INEXPENSIVELY SUPERIOR

The DS2000 KSR is the lowest priced RTTY terminal available with these advanced features:

- TX/RX operation on Baudot and ASCII RTTY plus Morse Code (Morse RX optional)
- Integrated keyboard and video generator allows editing of transmit text
- Full 24 line by 72 characters per line display
- Bright/dim display of characters differentiates between TX and RX display
- Morse receive option may be added at any time
- Separate CW identification key for RTTY operation
- Status line on top of screen shows terminal operating conditions
- Pretype transmit message into 255 character buffer; edit before transmitting
- 2 programmable "Here Is" messages
- Word-wrap-around prevents word splitting at end of display line
- Word mode allows editing of text to be transmitted
- Quick Brown Fox and RYRY test message keys
- Small size metal cabinet gives effective RFI shielding from transmitters
- Loop compatible RTTY connections and plus or minus CW key connections
- 110 and 300 baud ASCII
- 45,50,57,74,100 baud Baudot
- 1-175 wpm Morse transmit
- 1-175 wpm optional Morse receive
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- Internal CW side-tone
- UnShift On Space for Baudot
- Keyboard Operated Switch
- SYNC idle for RTTY
- One year warranty

Write or give us a call. We'll be glad to send you our new RTTY catalog.



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Stenlose Denmark

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ESM-914 Video Monitor...	\$169.00
MR2000	
Morse receive option...	\$159.00

HITS & MISSES

George Hammon WA6CQW
14215 Pecan Park Lane SP 73
El Cajon, CA 92021

FROM
THE
MAILBAG



DX BULLETIN

I received a nice letter from Syd Molen, VK2SG. Syd explains the Australian, New Zealand Radio Teletype Society now has about 580 members. This fine gentleman has 123 countries worked on RTTY. ANARTS broadcasts every Sunday RTTY news at 0130 UTC at a frequency of 21095 KHz. Since the start of ANARTS broadcasts they have transmitted approximately 1,500,000 words, used 3,785 feet of paper and 17,140 feet of paper tape and about 40 ribbons. You might say a Guinness record, I would say a mighty fine job Syd. I would also like to share another part of Syd's letter with you. Syd wants to know why the ARRL does not broadcast RTTY DX news. Syd says, "we have asked ARRL to include RTTY DX information, but so far they do not seem to know that there is DX RTTY around." Well Syd I shall write to the ARRL and please write again, let's get this going. I think if we all write them again and again with DX information, they will start to do it. I think if we each write with RTTY DX information, they will start to do it. I think if we each write with RTTY DX information, as clubs and individuals we will see this accomplished.

I have copied RTTY DX info from time to time so it can be done but it will take input to the ARRL. I know if each Amateur and each club will send input we will see RTTY DX info on the ARRL DX Bulletin.

DECEMBER QST

The December QST has two fine RTTY articles. A state of the art terminal unit for RTTY by Michael Di Julio, WB2BNJ, and a crystal controlled AFSK generator by Greg McInre, AA5C. This was a nice Xmas present for the RTTY gang. This is a result of a lot of hard work by you the reader. Please, when you send in RTTY DX info, express your interest in RTTY and ask for more RTTY articles. Thanks to the ARRL for recognizing our interest. AND when you think of RTTY don't forget that your JOURNAL also needs

articles and input from RTTYers.

TRS 80 NET

The TRS 80 computer net is headed by WA6YKH. The net meets as follows:
Sunday 1900Z 14342KHz SSB WA6YKH
Sunday 2200Z 14342KHz SSB WD8JAJ
Daily 2300Z 14060KHz CW VE6AMW
Daily 2300Z 14075KHz RTTY WB6VOG
Weekends 0000Z 7145KHz CW WD8AS
Weekends 1700Z 14085KHz RTTY WA4AJY

CQ Magazine

In the December issue of CQ is a fine article on RTTY by Stephen Sweko AA4BG. The DX section of CQ, starting in January, will be headed by Hugh Cassidy, WA6AUD. Hugh is the former editor of the west coast DX bulletin. This should be a great column.

COMPUTERS

During 1980 I have tried to include as much information on computers and where they interface with RTTY. I believe that the 80's RTTYer will see an unparalleled growth. Several DX expeditions this last year took RTTY equipment along and put out new countries for all Amateurs, CW, SSB and RTTYers. The ease of computers make them a natural for DX expeditions.

YEARS END

I will close out my column for the last time this year. I hope each of you had the happiest of holidays. I look back over the year and wonder where the time escaped to. This was a good year for RTTY. The band conditions were never better. Each night I printed more and more newcomers to RTTY. I have received many letters requesting an article on the 28 ASR. The article is finished and will soon be submitted to our publisher.

SO LONG FOR NOW, GEORGE WA6CQW

COMPU-WARD CONTINUED.....

Forward the verified list with \$4.00 for each award. Send application to MICRO-80, 2665 N. Busby Road, Oak Harbor Washington 98277. Foreign stations may substitute 10 IRCs for the award fees for each award.

CONTINUED FROM DX COLUMN

"KONTEST KORNER"

AUSTRALIA-OCEANIA

& ASIA FLASH -Jan 24-25, '81 DEC.80

BARTG Mar 21-22, '81 DEC.80

NORTH & SOUTH AMERICA

GIANT FLASH Mar 28-29 '81 DEC.80

EUROPE & AFRICA

GIANT FLASH May 23-24, '81 DEC 80

VK/ZL/OCEANIA-Jun 6 -7, '81 coming

SARTG August 1981 coming

WAEDC Nov 7 -8, '81 coming

CARTG October 1981 coming

COMPU-WARD

Stations applying for this award may or may not have a computerized station, however ALL STATIONS CONTACTED MUST BE COMPUTERIZED, meaning the contacted stations' transmitter must be interfaced with a computer. All contacts must be made after January 1, 1980. There are two awards offered:
1 HF bands-29.7 MHz and below.
2 VHF/UHF-50.0 MHz and above.
All contacts must be made on one or any combination of the following: RTTY SSTV, CW and ASCII. No crossmode communications will be recognized.

Single band & mixed band endorsement will be given with each band segment (HF, VHF, UHF etc.) Cross band operation will only be accepted for OSCAR contacts. All OSCAR contacts will be considered only for VHF/UHF accomplishments even though some of the OSCAR satellites have receive frequencies on 10 meters. Contacts via repeater are acceptable.

To qualify: Applicants WITH a computerized station must contact a minimum of 15 other computerized stations on the bands & modes authorized.

Applicants WITHOUT a computerized station must contact a minimum of 25 computerized stations on bands and modes authorized.

To apply, prepare a list, in prefix order, of calls worked, mode utilized, frequency or band, and date & time of each contact. DO NOT SEND QSL CARDS!!! Have your list verified by two fellow amateurs or have them notarized.

See column on left at bottom please.

MODIFICATIONS TO INFO-TECH 300-300C

VERNON SPELLMAN, K6CNJ

229 Doyle Park Drive, Santa Rosa, CA 95405

CW-ID on FSK from the keyboard of your Info-Tech 300 or 300C? Sure you can. Here are two simple modifications you can make to these popular keyboards to simplify IDing on FSK. Also, for you 'slow typers', a modification to give you a variable character-rate output on these keyboards.

Probably the easiest modification to give CW-ID on FSK is on the earlier model 300 Keyboard. Simply connect the output of the Morse monitor (through a switch if desired), to the base of the MPS-5172 transistor which drives the FSK loop keying transistor. In case the Morse monitor output is used for another purpose, just duplicate the Morse monitor output circuit (the 12K resistor and the transistor). Connect the duplicate circuit in parallel with the existing circuit except for the collector (which goes to the loop-keyer driver transistor base as above). In case the keyboard is sometimes used in the Morse mode the optional switch will prevent keying the FSK loop while in the Morse mode.

While still quite simple, modification of the 300C keyboard needs a different approach. Of a number of ways possible to do it, the system described proved to be the easiest to do.

1. Remove the trace between pins 5 and 6 of IC-15.
2. Connect two 10K $\frac{1}{4}$ watt resistors in series between pin 5 of IC-15 and pin 7 of IC-16.
3. At the center of these two resistors, connect a lead and run (through a switch if desired) to pin 9, IC-16
4. Remove IC-15 (4011) from its socket and replace with a 4001.

The variable character-rate circuit is based on the popular 555 IC clock. It simply gates the buffer run/load line between run and load at a rate selected by the operator with the rate control pot. An additional feature of the circuit automatically speeds up the output if one over-fills the buffer while in a slow character-rate output. Connections to the keyboard are simple and require no alterations to the keyboard circuit board. A switch may be placed in the lead going to the run/load line so the variable rate may be switched in or out. Connections to the two keyboards are as follows:

A & B- to 50K rate control pot.

C- to 12 volt line (pos.)

D- to buffer run/load line. (the line going to either the toggle switch on the 300 or to the key switch on the 300C.

E- Ground.

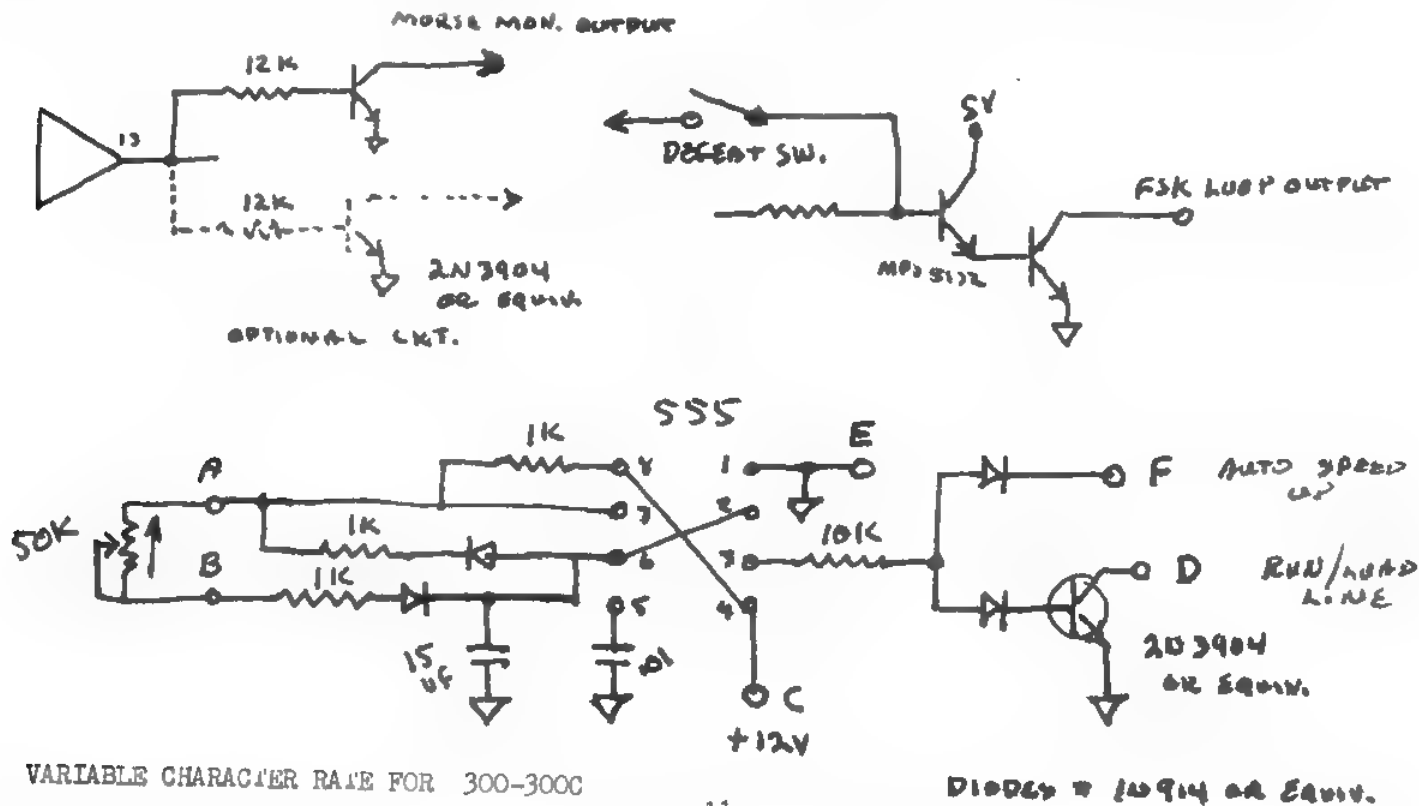
G- to the collector of the buffer full light transistor on the 300 or to pin 6 of IC-16 on the 300C.

Keyboards should be operated in the KOS (ie. CTRL/'X') mode and the diddle feature should be turned off when using the variable character-rate.

If desired the variable-rate circuit board with the components installed may be obtained from the author for \$17.50. See beginning of article for address.

See Page 12 for another schematic

MODEL 300 CWID ON FSK



A-650 MACROTRONICS RTTY INTERFACE APPLE II MICRO-COMPUTER

CHUCK EDWARDS, W6MNO
4726 Barbarossa Drive
San Diego, CA 92115

Macrotronics interfaces for Amateur Radio Teletyping are really nothing new! This company has been marketing interface devices for some time enable RTTYers to interface their equipment with their microprocessors.

Now, they have designed and are in production with an interface for the very well known Apple II computer. The Apple II, as everyone knows, is one of the more popular computers using the 6502 MPC. One excellent feature of this particular interface is that it contains its' own complete TU. In addition, Macrotronics provides a more versatile TU that is designed for heavy QRM on the HF bands, at a small extra charge. However, the TU furnished with the unit performs very well indeed on the VHF bands and will also perform well on low bands, especially if an input filter is used. Actually, I added the double filter featured in an issue of 73 Magazine.

The interface is easy to interconnect with your Apple II or Apple II plus. There is a single 16 wire ribbon cable furnished by the factory, that connects into the "game port". There are 2 Molex connectors on the rear of the interface cabinet that interconnect to your transceiver or external TU. For audio, AFSK and PTI connections. Extra mating Molex connectors are furnished, however the 4 or 5 shielded wires necessary are not furnished.

Instructions furnished are very descriptive and loading of the program from the furnished cassette is simple. Eventually I transferred the program to a floppy disk in the interest of time.

The CW ID'er, which is easy to program, can be printed by hitting the control key and "A". This will insert your CW ID anywhere desired and the printing will continue with no waiting. If the control key and "I" are hit, will insert your ID at the termination of your print and automatically return to receive mode. You can

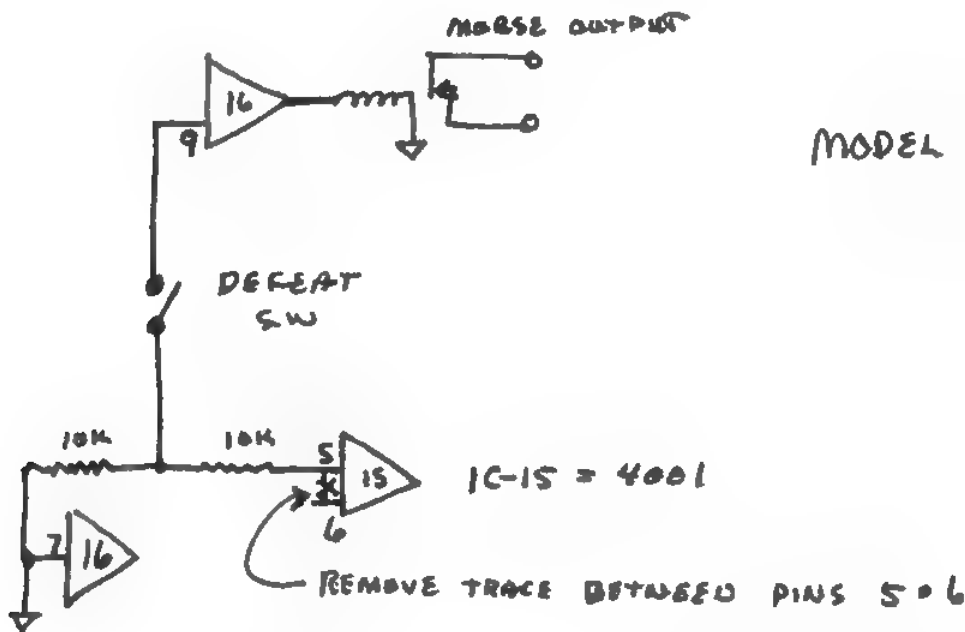
also use it as terminator for your Sel-cal and WRU, even if your "NNNN" function fails. When using the ASR function, and you have your buffer full of type you can interrupt, hold the buffer and answer another station asking for a "BK" to find out how he was printing.

I found interference leaking into my TS-820S and into the Apple while running "transmit" over about 20 wats so added .001 bypass disk caps on every i/output wire at each end from the 820S to the interface and grounded the interface to the computer power supply and to the 820, it worked..no more interference. I also installed a toroid sintered iron ring around the 16 wire ribbon going between the Apple game port and interface.

I preferred using my Dovetron TU. This allowed me to plug the Apple into my loop circuit much the same as a printer or TD, also allowing 'hard copy'. Either baud or ASCII machines may be used.

If you have an Apple and are interested in interfacing to RTTY try it you will like this combination. W6MNO

SCHEMATIC FOR MODIFICATION TO INFO-TECH 300-300C



CLASSIFIED

ADS

30 WORDS \$3.00, ADDITIONAL WORDS 5¢ EACH CASH WITH COPY--DEADLINE 1st of month for following month.

RTYM80 is an adaption of the Bit-Byter RTY-80 (C) software for use on the M80 board. Split screen & type ahead of buffer. (See Bit-Byter ad. this issue). Price \$30.00PPD. Vic Frump, KBEXJ, Phone 340-372-2047, UHF Sales & Service Co, Rt. 1, Box 52A, Evans, WV 25241. Specify: Name, address, call & level 1 or 2.

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NEWS-NEWS-NEWS-Amateur Radio's Newspaper "WORLD RADIO". Trial Subscription Two issues for one dollar. WORLD RADIO, 2509-F Donner Way, Sacramento, CA 95818 FOR SALE: Model 35KSR Teletype machine, excellent condition. \$400. Skip Prinsen, WB6CYA, 3611 Merrimac Ave, San Diego, CA 92117. 714-276-3182

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SALE*SALE*SALE*SALE*SALE; heavily inked UPI ribbons, fits all Teletype machines \$6.50 dozen; Dual spool red & black ribbons \$14.50 dozen; Perforator tape 11/16" x 8" case of 40 rolls \$19.50; 1" x 8" case of 28 rolls \$19.25 Black 1" x 8" box of 7 rolls \$7.50; strip printer tape 3/8" wide, ungummed box of 25 rolls \$14.00; Model 28 self-contained; stand-alone typing reperf with 3 speed gear shift \$120; Single speed \$95; Model 28 ID \$99; Roll paper, Canary or white, 5" diameter, case of 12 rolls \$25.00; Model 28 ASR complete but not rewired nor checked \$255; Model 28 ASR complete & checked, rewired for local loop \$300; Model 28 typing units, sprocket feed, less type box \$99 Model 28 typing units, friction feed, less type box \$149; Model 28 ASR auxiliary reperf type LARP complete with motor, base & mounting studs to fit inside model 28 ASR cabinet behind ID \$99. All prices are FOB Brooklyn, NY ATLANTIC SURPLUS SALES, 3730 Nautilus Ave, Brooklyn, NY 11224, Tel: 212-372-0349.

FOR SALE: 5th edition of the "LIST OF RTTY STATIONS IN FREQUENCY ORDER", now contains more than 1200 frequencies monitored in 1979-80 of commercial stations like press, aeronautical, weather, telex, military, diplo, maritime etc., on shortwave. Schedules of around 70 news agency stations, and more than 180 special abbreviations are also included. This offset printed list is airmailed to you for \$16 or 39 IRC from Joerg Klingenfuss, Panoramstrasse 81, D-7400 Tuebingen 7, West Germany.

SATELLITE TV RIPOFF? Building a Satellite TV terminal? Tired of "Information Package" ripoffs? Let's band together and exchange information on the best LNA's, mixers, kits, P/C boards antennas and on the ripoffs! Send a SASE (1-15¢ stamp) and your comments, compliments, complaints, RIPOFFS, etc., and I will duplicate information received and return in your SASE. Mitch, WA4GSR, Box 973, Mobile, AL 36601.

THOUSANDS OF COMMERCIAL RTTY STATIONS are active between the amateur shortwave bands. Many of them can be easily printed with your existing equipment. (Take care of legislative restriction if applicable!) If interested, you need "software", compiled from nonstop monitoring the complete shortwave spectrum. I have up-to-date frequency, call sign, schedule, code lists on press military, diplo, telex, aeronautical, weather etc., stations. Write for details. Joerg Klingenfuss, Panoramstrasse 81, D-7400 Tuebingen 7, Germany MODEL 28 ASR's with typing perf \$300. Pick-up only. John Gilmore, W8ZZD, 3220 Lynwood, NW, Warren OH. 216-898-2100. TELETYPE ASR33 COMPLETE w/stand, paper tape and manuals. Just refurbished by Teletype. Works perfectly. \$400 or best offer by March 1st. Steve Larson, N3SL, 1525 S. Lansing St. Aurora, CO 80012. 303-752-3768.

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